Rediscovery of *Passiflora lanceolata* (Mast.) Harms (Passifloraceae) in Peru

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**Abstract**

*Passiflora lanceolata* (Mast.) Harms is a poorly known endemic species from the highlands in Peru. This species was believed to be extinct, but it has been found and collected for the first time since 1970. Herein, we increase the general knowledge about *P. lanceolata*, its morphology, and geographical distribution. A description, photographs, and taxonomic comparisons with related species are provided.

**Keywords**


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**Introduction**

*Passiflora* L. (Passifloraceae) is a genus of tropical vines that can grow from sea level to altitudes of more than 4000 m. This genus is the largest in the passionflower family, Passifloraceae, with more than 525 species. It stands out for the value of its fruits, its ornamental flowers, and its complex floral ecology (Ulmer and MacDougal 2004). Nowadays, the infrageneric classification recognizes six subgenera: *Astrophea* (DC.) Mast., *Deidamioides* (Harms) Killip, *Decaloba* (DC.) Rchb., *Passiflora* L., *Tetrapathea* (DC.) P.S. Green, and *Tryphostemmatoides* (Harms) Killip, with superfamilies, sections, and series (Feuillet and MacDougal 2003; Kronick et al. 2013; Buitrago et al. 2018). The subgenus *Passiflora* is the most diverse and economically important as it possesses the majority of edible fruits (Martin and Nakasone 1970).
accepting the circumscription of the section *Pogge-

dorffia* (H. Karst.) Triana & Planch. within *Tacsonia*.

In 1857, Karsten described the monotypic genus *Pogge-
dorffia* H. Karst. [*Passiflora* sect. *Pogge-
dorffia* sensu Escobar (1988)], which is recognized by the
possession of an anomalous androecium with basifix-
atheers. Years later it was found that the type species,
*Passiflora rosea* H. Karst (*Passiflora × rosea* (H. Karst.) Killip),
represented a natural hybrid between *Passiflora tripartita* var. *mollissima* (Kunth) Holm-
Niel. & P. Jör., a species that belongs to *Passiflora*
sect. *Elkea* Feuillet & J.M. MacDougal, and P. *pinnatis-
tipula* Cav., which belongs to *Passiflora* sect. *Insignes*
(Harms) Feuillet & J.M. MacDougal (Killip 1938; Chan
and Borchardt 2016). Due to this inconsistency, Feuillet
and MacDougal (1997) renamed section *Pogge-
dorffia* as *Passiflora* sect. *× Inkea* with *Passiflora × rosea* as
the only member. The remaining species that used to belong
to sect *Pogge-dorffia* were moved to *Passiflora* sect.
*Insignes* (Feuillet and MacDougal 1997; Jørgensen
and Vásquez 2009).

*Passiflora* sect. *Insignes* consists of four species
demic to Bolivia, one to Peru, and one widespread
species (Jørgensen and Vásquez 2009). Morphologi-
cally, these species are grouped due to the presence of
pinnatisect stipules and bracts free to the base. Cur-
cently, the section *Insignes* is nested within *Passiflora*
supersection *Tacsonia* (Escobar 1988; Jørgensen
and Vásquez 2009). *Passiflora lanceolata* (Mast.) Harms
is one poorly known species from section *Insignes*,
which is endemic to Peru and known only by its type material
(Killip 1938; León and Jørgensen 2006; Ocampo et al.
2014). According to the IUCN criteria, *Passiflora lan-
ceolata* must be categorized as Critically Endangered
because of its small extent of occurrence (Jørgensen
and Vásquez 2009; Bonilla 2014). Furthermore, Jørgensen
and Vásquez (2009) have suggest that *P. lanceolata* now
may be extinct.

Due to its particular morphology, Jørgensen and
Vásquez (2009) pointed out that *Passiflora lanceolata* might be a
connection between *Passiflora* sect. *Insignes* and
the other species of supersection *Tacsonia*.

**Results**

*Passiflora lanceolata* (Mast.) Harms, Bot. Jahrb. 18
(Beanl. 46): 11. 1894 [not *P. lanceolata* G. Don, nom.
nud. and an orthographic error for *P. lancifolia* Ham.].

**Basionym.** *Tacsonia lanceolata* Mast. in Mart., Fl. Bras.

*Passiflora acutissima* Killip, J. Wash. Acad. Sci. 17:
428. 1927 [nom. nov. replacing, unnecessarily, *P. lance-
olata* (Mast.) Harms].

**Type.** PERU. “Andimarca” [Dpto. Amazonas, Prov. Luya,
Dto. Santo Tomas, Andamarca], VII-1831–1834,
Mathews 1252 (lectotype, designated by Killip 1938, K!
[K000262644]; isolecotyope, E! [E00326192]).

**Figures 1–3**

**New record/materials examined.** PERU. Ayacucho:
Prov. La Mar: Anchihuay de la Selva – Ajojasapampa,
12°58′16.64″S, 073°50′00.93″W, 3500 m, 25 May 2015
(fl.), R. Fernandez-Hilario 943 (MOL!); Near Cusim-
achay, c. 25 km NE of Tambo, on W slope of the Rio
Apurimac valley at c. 3587 m, 12°49′S, 073°50′00.93″W, 28 Jul
1970 (fl.), J. S. Weske 10386-70 (NA, photo!).

*Passiflora lanceolata* is endemic to humid montane
forests with adjacent grasslands in northern and cen-
tral Peru (departments of Amazonas and Ayacucho).
This species is found at 3500–3600 m a.s.l. in valleys
with shallow slopes. The individual *Fernandez-Hilario
943* was recorded growing on a stone fence with other
species such as *Caiophora aff. cirsifolia* C. Presl, *Cle-
thra ferruginea* (Ruiz & Pav.) Link ex Spreng., *Gynax-
ys cuscoensis* Cuatrec., *Jaltomata herrerae* (C.V. Mорт-
ton) Mione, *Lepechinia heteromorpha* (Briq.) Epling,
*Morella pubescens* (Kunth. ex Willd.) Wilbur, *Polylepis
pauta* Hieron., *Siphocampylus vatkeanus* Zahlbr., *Sola-
nnum nutans* Ruiz & Pav., *Solananu probolosperrum Bit-
ter*, and *Verbesina sp.*

**Identification.** Vine, glabrous, except for stems, peti-
oles, and peduncles; indument pilose. Leaves unlobed,
alternate; stipules 8–15 mm long, lanceolate, reduced to
pinnatisect filiform segments, glabrescent to ciliate;
petiole 4–10 × c. 0.75 mm, with 2 terminal stipitate glands;
lamina 3.4–8.2 × 0.9–1.9 cm, lanceolate, apex acume-
nate to attenuate, base obtuse to rounded, margin entire
and revolute when dry, glabrous, sub-concolorous, the
adaxial surface lustrous, sub-chartaceous, the venation
eumptodromous and arcuate, with 10–13 secondary
veins. Peduncle 4.6–9.5 cm long; bracts 3, free, involu-
crate, 20–23 × 8–11 mm, ovate, apex attenuate, fimbri-
ate-glandular, ciliate. Flowers solitary and pendulous,
red or orange, 2–4 cm long, pedicel 2–3 cm long, pubes-
cent; sepals 15–30 mm long, orange or pink, apex obtu-
bate, outer surface pubescent, inner surface glabrous;
sepal 5–10 × 1–5 mm, oval, apex obtuse, abaxially
aristate and keeled, awh 2–6 mm long, externally pink
and lavender, internally pink; petals slightly smaller
than sepals, oblong, apex rounded, pink; corona 2- or
3-ranked, borne at mouth of tube, the outer series of filaments 1 mm long, tuberculiform, violet, the inner series progressively reduced to punctiform appendages; operculum 7 mm long, not plicate, dependent, the margin recurved, denticulate; limen inconspicuous or absent; filaments free before the gynophore, anthers yellow; ovary ellipsoidal, green, glabrous; styles light purple; stigmas globose, light green. Fruits unknown.

A combination of six morphological characteristics make *P. lanceolata* easy to recognize: (1) lanceolate unlobed leaves, (2) pinnatisect stipules, (3) involucrate bracts free to base, (4) floral tube longer than the sepals, (5) corona composed by two or three series of reduced filaments with the outer series tuberculiform and other two progressively reduced to punctiform appendages, and (6) an androecium partially zygomorphic.

**Conservation status.** The two localities of the Ayacucho region (separated by c. 18 km) are found between the limits of grasslands with humid montane forest, with no to very little anthropic perturbation. It is possible that there are more populations of *P. lanceolata* within this area. The type locality at Andamarca (Amazonas region) currently presents fragmented and disturbed montane forest due to the expansion of agriculture. Jørgensen and Vásquez (2009) assigned a conservation status of Critically Endangered to the species. Following the guidelines of the IUCN (2019), we assign this species to the Endangered category under the criteria B2a+biii.

**Discussion**

The type locality and the geographical distribution of
**Figure 2.** *Passiflora lanceolata.* **A.** Perianth, stamens and pistil. **B.** View lateral of the flower. **C.** Habitat of *P. lanceolata* in La Mar (Ayacucho). Photos by Robin Fernandez.
Figure 3. Distribution of *Passiflora lanceolata* in Peru, specimens collected in 1970 and 2015 (squares) and Mathew’s collection (triangle).
Passiflora lanceolata are still uncertain. Regarding to the type material (Mathews 1252) of P. lanceolata, the specimen presents an annotation that says “Mons Atlis. Andimarca”, and the department where it was collected was not mentioned. In Peru, there is no locality called Andimarca, but there are 13 localities called Andamarca in various departments. One of these localities is located in the province of Luya in the department of Amazonas, whereas another three localities are in various provinces within the department of Junín. Previously, Killip (1938) and León and Jørgensen (2006) indicated that the type material of P. lanceolata was probably collected from department of Amazonas, in northern Peru. Subsequently, Escobar (1988) interpreted that Andamarca was located in the department of Junín, in central Peru, and that interpretation was considered correct because B. León indicated that the locality of Ancylologueyne capitata Nees (Mathews 1230) was located in the province of Concepción in the department of Junín (Jørgensen and Vásquez 2009). However, after searching for Mathew’s specimens in K, we observed that the specimen Mathew 1247 (http://apps.kew.org/herbcat/getImage.do?imageBarcode=K000613160) presents an annotation that says “Lomas de Lurin”, an area located in the department of Lima on the Peruvian coast, while the specimen Mathew 1253 (http://apps.kew.org/herbcat/getImage.do?imageBarcode=K000329236) indicates “Bajasan Prov. Chachapoyas”. Currently, the locality called Bagazán is located in the province of Luya in the department of Amazonas. Additionally, Bagazán is appropriately located 10 km from the city of Chachapoyas and 40 km from Andamarca. Therefore, we consider that the type material of P. lanceolata comes from of district province of Luya in the department of Amazonas.

Passiflora sect. Insignes had a geographical origin between the Andean region of Bolivia and southern Peru (Escobar 1988). Passiflora pinnatispistula is the only species with broad distribution, and this species is cultivated from southern Chile to northern Colombia. For this reason, P. lanceolata is the only exclusively wild species from the section Insignes inhabiting low latitudes. In the revision of Passiflora sect. Insignes (Jørgensen and Vásquez 2009), the description of P. lanceolata was based only on the type material and lacks precision, as some structures like the corona, limen, operculum, and inside of the floral tube were not observed. The corona was believed to be composed of only one series of reduced filaments (Killip 1938). Nevertheless, it is actually composed by two or three series of reduced filaments; the outer series measure about 1 mm, and other two are progressively reduced to punctiform appendages. The inner surface of the floral tube does not present any filiform appendages. The inner surface of the floral tube does not present any filiform appendages. The inner surface of the floral tube does not present any filiform appendages. Therefore, the corona was believed to be composed of only one series of reduced filaments (Killip 1938). Nevertheless, it is actually composed by two or three series of reduced filaments; the outer series measure about 1 mm, and other two are progressively reduced to punctiform appendages. The inner surface of the floral tube does not present any filiform appendages. The inner surface of the floral tube does not present any filiform appendages. Due to the relatively short floral tube of the species from section Insignes and their partially reduced corona, morphological analyses have placed section Insignes as a subclade closer to section Manicata, an intermediate clade between the Tacsonia/Elkea species and section Colombiana (Ocampo and Coppens d’Eeckenbrugge 2017). However, P. lanceolata possesses a floral tube longer than the sepals, the longest among Insignes. Additionally, the pinnate stipules of the species from section Insignes could indicate an intermediate state between the foliate and reniform stipules of sections Elkea and Tacsonia, and the linear stipules of Passiflora sect. Colombiana. Finally, it is necessary to address a phylogenetic study to establish the relationships among the species of the section Insignes, with special focus on P. lanceolata.

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Authors’ Contributions
GCC and RFH, contributed equally with the study design, data collection, discussion, and writing of the manuscript.
RFH contributed in the field collection of *Passiflora lanceolata*.

**References**


